COMPUTERWORLD

The Newsweekly for the Computer Community

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Top-Selling Software?

More Autoflow Sales Reported By ADR As Competition Readies

PRINCETON, N.J. – Applied Data Research, Inc., has leased 23 additional Autoflow systems during the past two months.

Autoflow, a computer documentation system, produces two dimensional flowcharts automatically and directly from Cobol, Fortran and Assembly Language programs. Since its development in late 1966, ADR has leased approximately 150 individual systems to commercial and federal government users.

New Users

Among the new commercial Autoflow users are Allstate Insurance Co., American Telephone & Telegraph Co., A.O. Smith Corp., Bank of New York, Cities Service Oil Co., Consumers Power Co., Dow Chemical Co., Equitable Life Assurance Society, Great American Insurance Co., Humble Oil Co., Hydro-Quebec, Inland Steel Co., Jones & Laughlin Steel Co., Lockheed-Georgia, Transamerica Insurance Co., TRW Systems, and World Wide Volkswagon.

Also, 15 additional companies have contracted for Autoflow on a service bureau basis. Flowcharting is done on an IBM 360/40 computer in ADR's Washington, D.C. office.

Autoflow performs statement analysis, page allocation, line drawing, and rearrangement of program flow.

Follow the Leader

The success of Autoflow is being followed by other companies with automatic flowcharting systems. National Computer Analysts, also of Princeton, are in the final stages of preparing a 360 version of their Quick Draw, and the Aries Corporation is making deliveries of their Autodiagrammer.

When asked by COMPUTERWORLD, Aries and NCA acknowledged the early leadership of Applied Data Research in this field, but both felt they had provided some major improvements. NCA, for instance, claims to have reduced the number of charts produced for specific programs by 50% – making their charts much more understandable.

Sell – Don't Lease

Richard Daly, president of Aries, told COMPUTERWORLD why his company prefers to sell their systems outright. "We believe that for this style of software product, a user needs to have everything – flowcharts, listings, the lot. Then he can adapt it as he needs."

Remote-Processing To Be Expanded Along Pacific

SAN FRANCISCO, CALIF.–Not one, not two, but three separate and independent Univac 1108 services suddenly announced major expansions on the Pacific Coast.

Jacobi Systems Corp., Encino, got one 1108, while University Computing Company's van was carrying the first group of five Cope 45 terminals to their California operation. These terminals will help inaugurate the University Computing Company Remote Processing Services in that state. Simultaneously, the first company to supply remote processing on the Univac 1100 series, Computer Sciences Corp., announced an expansion – a second 1108 being installed in Calgary, Canada to assist their 1108 operating in Richland, Washington. (Their original 1108 system in Los Angeles was recently sold to University Computing.)

The three services do not appear to be in direct competition, as they offer three different modes of operation. However, from a user's point of view, the increased number of available services means an increased number of choices open to him.

In-House Processing

The Jacobi computation center is headed by Jerry Hanna, who was, until recently, manager of computer operations for Systems Development Corp., Santa Monica. The center, and their computer, are designed for the specialized technical and economic requirements of large scientific users, according to Hanna. Jacobi Systems is privately owned, but is scheduled to be partially acquired by Consolidated Learning Corp. of America.

Remote Processing

The University Computing operations are new, but do offer remote operation – using a special Cope 45 terminal that actually includes a small computer. (See CW Vol. 1, No. 16, p. 5)

Lewis Nixon, manager of UCC's terminal marketing operation, claims that the use of these terminals allows a user to gain up to a five-fold performance improvement. The operation, although providing for remotes, does not allow for time sharing – and at the moment there are no plans for this service. UCC is going to place a number of 1108s throughout the country, including one in both Los Angeles and San Francisco.

A remote operation, installed at New Orleans, has been in operation for the past few weeks, through the

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	Univac 1108 with jobs entered through Univac 1004	Univac 1108 with jobs entered through an on-line Univac 1004	Univac 1108 with jobs entered through a remote Cope 45
CARD READER SPEED	180 cards/min.	594 cards/min.	1312 cards/min
PRINTER	132 lines/min.	465 lines/min.	562 linet/min.
ELAPSED TIME FOR TEST JOBS	1131 seconds	327 seconds	230 seconds
1108 COMPUTING TIME USED	48 seconds	48 seconds	48 seconds

The effect of using a Cope 45 Terminal is shown in these test figures. The Cope 45 was used at a remote site away from the computer center, and was still able to out-perform the Univac 1004 whether it was at a remote site or in the computer room itself.

Univac Rising To Top Of Sperry Money-Makers, Says Its President

NEW YORK, N.Y. – Profits from Univac computer operations are "well on the way to becoming the leading contributor to Sperry Rand's earnings," J. Frank Forster, president, told a meeting of the New York Society of Security Analysts.

Univac is also the fastest growing major segment of Sperry Rand's business, and contributions to corporate profit by the division have been increasing with each quarter and have been continuous over the last 27 months, according to Forster.

Future Growth

For the future, Sperry Rand expects continued internal growth from computer and office equipment operations, as well as from hydraulics, farm equipment, and commercial aviation.

Additionally, Forster stated that the company has concentrated on dispositions, "cleaning up its own house in order to better utilize its assets." Examples of this are transfers of plants and facilities to the Univac Division, negotiations now underway for the sale of the Semiconductor and Electronic Tube Divisions of Sperry, the recent sale of Univac's punched card business, and consolidation of plants abroad.

Forster said that while the company is spending considerable time studying the question of acquisitions, there are, at present, no major acquisitions contemplated.

Says Senator Long

Inefficiency Is Privacy Guard!

WASHINGTON, D.C. – "Whatever privacy remains for the American citizen . . . remains because the Federal Government is presently too inefficient to pull all its personal information files together." This statement ...stor Edward Long, chairman ...bcommittee on Administrative Practice and Procedure, is one of the most dramatic and recent comments on a proposed data bank for the government.

Long also said, in a 605 page summary, that the data bank would make it very easy to "put a whole life

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Local Inventory

Paper Supplier Now Selling Disk-Packs

LOS ANGELES, CALIF. – Two west coast disk pack manufacturers are in the news this week. Caelus Memories has moved from pilot to full scale disk pack production, and Memorex Corp. has been identified as supplier for the new Kee Lox disk packs. These are now being placed on local inventory by Kee Lox, a carbon paper supplier, in 25 major cities across the country.

On Schedule

Caelus Memories announced their move on schedule. Their president, Philip Yaconelli, told COMPUTERWORLD last September – shortly after ground was broken for their new building – that full scale production was expected to start in January of 1968. The new facilities were specifically designed for the production of disk packs, and include extensive equipment for evaluation and testing. Yaconelli told COMPUTERWORLD that, in his opinion, disk pack standards could be improved, and he hopes to prove this with facts and figures.

Sweeping the Country

In the meantime, Kee Lox salesmen, who just recently started selling magnetic tape on immediate delivery, added disk packs to their inventory and sold over 100 in New York City alone. This was highly profitable as a slight premium – $30 – was being charged. Kee Lox packs are priced at $520, rather than the standard $490. The packs are labeled Kee Lox, but are believed to be manufactured by Memorex.

The magnetic tape being sold by Kee Lox also appears to be a Memorex product. Neither company, however, cared to make a direct comment.

Memorex was generally in high spirits this week – their annual report showed a 31% increase in profits.

Touch-Tone Telephone Is Only Remote Needed For Audio-Response

DETROIT, MICH. – A new piece of equipment, the Burroughs Audio Response System installed at a central computer location, can provide spoken answers to standard queries from anyone, anywhere, who calls the computer. The only equipment needed at the remote site is a touch-tone telephone.

The equipment will be installed later this month, and can be used with the Burroughs 500 series of computers, or the B-300. Necessary safeguards are part of the central computer's program, so that actual facilities will differ according to the particular model. The B-5500 program, for instance, provides an automatic play-back of numbers entered by the operator and they can be corrected, if necessary, before the actual inquiry is put to the computer. This facility is not currently available on other models in the 500 series.

While it is expected that the equipment will normally be used to provide answers for questions – where actual data on the computer memory is not changed – it can also be used to provide the system with updating mu-

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Editorials

Words & Spellings

A midwestern newspaper recently defined "real time" for its readers as being "the time when the computer is really doing your work" – which has a novelty all its own. As a matter of fact, if known, that particular time would be very valuable to many people. Obviously, we can't use the phrase "real time" for it because we are already using it for something else.

COMPUTERWORLD comes up against these problems all the time: spelling simple words like "disk" (the Greeks had one word we have three); or the meaning of "time sharing" (which manufacturers do not even standardize in their own product lines).

These and other horrors drive everyone to distraction – and leave the printed page replete with implicit contradictions.

COMPUTERWORLD believes that manufacturers are entitled to make as much use of the confusion as they care to. They can go along with the giants of the industry (thereby showing they are staying up with the state of the language); or they can use their own particular interpretation of English usage (thereby showing their correctness and independence). We do not care and we are not going to try and stop them. In advertisements they may use whatever spelling they choose. But, in normal day to day references to standard style products, we will use a standard word style.

Hope no one minds too much!

The Experts Are Needed

Newton, Massachusetts was not the first place to count its election votes on the computer. But last November it was one of the first cities to find a snag in the system. At first the snag appeared to be minor – there was some delay in messengers arriving to take the cards that had been produced at polling centers down to the computing center. That was only the beginning.

Election authorities, faced with some puzzling figures, made what they thought to be a sensible decision. Sensible, unless you knew how the figures had been created by the computer. They simply divided the difference in a set of votes between the two candidates. In fact, the votes belonged to neither of them.

What they did not do before announcing the tabulations was consult with the data processing experts.

COMPUTERWORLD would like to suggest to all those people who are going to be concerned with data processing during the coming election period that they check with the experts. Every computer center involved in elections has informed data processing experts ready and waiting during those few crucial minutes while output is being examined for reasonability.

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Quests Jump For Systems

Leasing Vs Purchase Has Technical As Well As Financial Implications

Whether a system is leased or rented does not appear to have any technical connotations. In fact, it has. However, technical differences are not fully obvious until approximately four years after the installation is in and operating. It is at this point that the possibility of upgrading the installation appears. Computers are now being changed about every four years, and under a rental arrangement it is almost always worthwhile to go to a larger system as there is no investment in the machinery. If you have purchased the system through a third-party lease, however, you do have an investment – made by either you or the finance company. As a result, the new system must be evaluated against the actual dollar-cost of the old system.

In the U.S. systems are still being priced at the rental income level. When a system has been purchased, it is frequently more economical to keep it in operation for eight years – skipping a full computer generation.

In 1964 the government purchased some $12,000,000 worth of IBM 7000 computers. These computers have been in use since, and have already proved their value. As far as the government is concerned, the only outstanding charges against these installations are for maintenance and electricity. The purchase price has being fully recovered against what was budgeted for rental.

Generation Gap

In evaluating if move to the 360/65 or 360/85 (or Standard Computer systems that run 7000 programs), managers must very carefully consider whether or not they want to go to the 360s. A lessee would immediately look at the cost of the new system – in general, higher than that of his present system by approximately 10%. By contrast, purchasers would compare the out-of-pocket expense against another purchase at a later date. The purchase will cost less than the rental system by up to 40%. Out-of-pocket costs for the old system are only about 30% of the entire rental cost – a potential saving of 70%.

This can offer a strong incentive for not purchasing the new system. This will probably mean that as more and more installations purchase their equipment, more will tend to miss a complete generation.

Solid Back-Up Needed

The implications, from the manager's point of view, are tremendous. It will be important that he maintain a solid background of software for the old system. After five or six years the manufacturer is not interested in any more than token support.

By contrast, when the time actually comes to change systems – after missing one generation and eight years – the manager will not have to worry very much about program conversions. It is unlikely that anything like the same system will be wanted in eight years time. Leased processing systems will not work up – as rental systems do – to multi-programming and elementary display. Instead, it is more likely to jump straight into a management information system. The form of this system will not be determined by computer technology; but by the needs of the organization.

Planning Ahead

The EDP manager will have to realize this. During the three or four years at the end of the support system use, he will have to prepare an extensive examination of the needs of his organization – considering the dollars being saved in computer out-of-pocket costs. This examination should include new style systems; completely thought-out conversions; and general readiness for a major advancement rather than a small improvement.

In Summary

If you are interested in purchasing systems, you will probably not get into the next generation, and conversion costs (particularly automatic conversion costs) can be eliminated if you are properly prepared for change.

Letters To The Editor

To the Editor:

As a November 1967 graduate of the IBM class "Design and Analysis of Communication-Based Systems," I would like to correct your article on Page 4 of your January 31st paper. I might add this was the third class held by IBM in 1967 and one was held in December for all non-IBM personnel. I personally felt the class was in the excellent category and would strongly recommend it to anyone so interested.

I enjoy reading your newspaper and it has been well read here at Montgomery Ward.

C.D. Warkow
Telecommunications Specialist
Corporate Systems Division
Montgomery Ward
Chicago, Ill.

Glad to have your comments on the Communication Systems course, which as you say has been given to non-IBMers before. What is new is giving Part II of the System Analysis course, which has never previously been given to non-IBMers. Ed.

Standards: Let Your Voice Be Heard Effectively

One of the criticisms of some standardization practices is that they restrict the technical upgrading of equipment. A case in point is the disk pack. It is possible, for instance, that lack of standards can cost disk oriented installations one-third of the money – and time – presently being spent on disk packs! (Details will be given in next week's COMPUTERWORLD.)

Congressman Brooks has asked the computer community to rethink basic standardization problems (See CW Vol. 2, No. 6, p. 2), and Dr. H. Grosch has agreed to review all comments and suggestions from COMPUTERWORLD users.

This is YOUR opportunity. Use the coupon below to send us your comments. They will not be ignored!

To The Editor, COMPUTERWORLD, 129 Mt. Auburn St., Cambridge, Mass. 02138

I am enclosing, on a separate sheet, comments for the consideration of Dr. H. Grosch, director, the National Bureau of Standards Center for Computing Sciences.*

These are relevant to:

- ☐ Brooks' letter, Point 1 – "There is a need for specific problem definition in the data processing standardization effort."
- ☐ Brooks' letter, Point 2 – "The standardization effort must be altered to optimize results."
- ☐ Brooks' letter, Point 3 – "Independent criteria identifying the characteristics of a new generation common computing language must be developed."
- ☐ Other.

See COMPUTERWORLD Vol. 2, No. 6, p. 2 or Communications of the ACM Vol. II, No. 1, p. 53 for the text of Congressman Brooks' letter to Charles L. Schultze, director, Bureau of the Budget.

Name _____ Title _____

Company or Organization _____ Address _____

I do ☐ do not ☐ wish you to consider these comments for publication in CW.

*Copies of your comments will be forwarded to Congressman Brooks by COMPUTERWORLD.

Disk Business

Memorex Earnings Zoom While Their Product Base Is Widened

SANTA CLARA, CALIF.–Memorex Corp. net profit for the year ended December 31, 1967 was $3,576,000, an increase of 31% over the $2,724,000 reported for 1966, Laurence L. Spitters, president, announced today. Annual earnings per share in 1967 were $1.15, based upon the average number of shares outstanding during the year and the 3-for-1 stock split. Comparable earnings for 1966 were $.89 per share.

Memorex's net sales increased 40% to $34,232,000, as compared to $24,417,000 in the prior year. Research and development activities involved expenditures of $2.4 million, a 63% increase over the 1966 R&D spending. Spitters also noted that growth of operations in 1967 is shown by the approximate 50% increase in the size of the company's facilities to 410,000 square feet, and in the number of employees to more than 1300.

Spitters, who is also chairman of the board of directors, commented that the significant successes of 1967 included not only growth of sales and earnings but also the broadening of the company's business by diversification of product lines and the strengthening of management.

The broader base of business established by Memorex included two diversifications within the field of magnetic recording media and equipment for use with computer systems: Memorex Mark 1 Disk Pack and the Memorex 630 Series Disk Drive, both introduced in 1967.

DOS Software Offered To Banks For On-line Credit Control

CHERRY HILL, N.J. – An on line credit authorization system for DOS 360 users was announced by Arthur S. Kranzley and Co. The system costs approximately $10,000.

Called the BANKSERV Authorization System, it uses displays that enable clerks to determine whether or not to approve credit or cash loans in seconds. The minimum hardware is an IBM 360/30 with 65,000 bytes of storage and IBM 2260 inquiry/display terminals. Running under multiprogramming it reads one or two dedicated disks, and a 26K partition.

The system was developed by the Valley National Bank in Phoenix and is now in full operation there. Kranzley says he is offering it both as an independent system and as an enhancement to its BANKSERV Cardholder Accounting System 360.

Time Saver

The system eliminates manual posting and the delays of manual lookup. It produces an audit trail (on tape or on a separate disk) of all authorizations, continually updates the credit status files, and makes management reports available on demand. When used in conjunction with BANKSERV cardholder accounting, it provides for recording and deleting authorized transactions from individual cardholder master files and posting name, address, and status code changes.

It is activated by a call from either a merchant or a loan officer to an authorization clerk. The clerk enters transaction information into an IBM 2260 keyboard. The system tests the input for validity, then against authorization criteria. When all tests are passed, an authorization number is displayed for the clerk, the transaction is recorded, and the clerk relays the authorization number to the caller. The system also has the ability to display credit information about a customer upon request.

Availability

The BANKSERV Authorization System is now available and can be installed and operational in four to six weeks. It is being offered for bank credit card, retailing, and other credit applications that call for immediate credit information on individual accounts.

Vote Count Error Traced To Rushed Program-Patch

NEWTON, MASS.–In last November's election an automated vote tabulating procedure produced some incorrect results. Investigations of the results have now been concluded and blame has been placed on improper coding in a 1401 autocoder program. However, the incorrect results would not have been published by the election committee except for a series of human errors.

Header Card Error

Under the procedures laid down by the programming firm (Seismic Corp., Tulsa, Oklahoma, a subsidiary of Raytheon) the program was tested extensively before the election. At that time the election committee requested that ballots with votes for more than one candidate be added to the blank ballot section. This involved some 50 to 70 patch instructions on the 1401, and was agreed to by the programming contractor.

In retrospect, Mr. E. Crossland, the national sales manager of the Seismic voting products division, believes this was an error. Subsequently, the programming contractor did not fully retest the decks, but the election commission did. Unfortunately, the second error occurred here – a header card was left out and an important vote bloc from the fifth ward did not appear at all!

The third error occurred after the polls closed. The election authorities noticed that there was an excess of votes for one race so they arbitrarily split this excess between the two candidates, and announced the results to the press. Only then were the data processors advised of their apparent program failure.

Crossland feels that if he had been advised prior to the public announcement, correct tabulations could have been announced almost at once. The DP error could have been easily corrected on the output.

Newton's Mayor Basbas tried out the vote-recorder used in the town's November elections. Incorrect returns were blamed on human error.

Mr. Alan Licarie, executive secretary to the Newton Voting Commission, told COMPUTERWORLD this week that he doubts the adequacy of any testing. He pointed out that there had been considerable precautions taken – the program was tested after being dumped, placed in a locked vault, retested immediately prior to the actual tabulation, etc. On the other hand, Seismic feels that their new techniques will insure the accuracy of election-results programs.

New Safeguards

These techniques involve the development of general purpose Fortran and Cobol programs. The programs can be inspected by anyone at all familiar with data processing, and become operational by inserting control cards. At the same time, Seismic feels that if a discrepancy does occur, advice should be sought from data processing experts prior to making and publishing arbitrary decisions.

Computer Leasing Offers New Stock

WASHINGTON, D.C. – Computer Leasing Company reported that the company has filed a registration statement with the Securities and Exchange Commission covering a proposed rights offering of an estimated 325,000 shares of its common stock. The subscription price and record date will be established later.

Stockholders of Computer Leasing Company, other than University Computing Company which owns approximately 53% of the outstanding common stock of Computer Leasing, would be offered the right to purchase one share for each ten shares owned on the record date.

Stockholders of University Computing would be offered the right to purchase one share of Computer Leasing common stock for each 15 shares of University common stock owned on the record date.

SDS Earnings Up 50%, Stock Split

LOS ANGELES, CALIF. – Scientific Data Systems, Inc. reported record earnings for the year ended December 31, 1967, and announced approval by the board of directors of a 3 for 2 stock split and a call for all outstanding 3-1/2% convertible debentures.

Net income rose 50% from $4,332,000 in 1966 to $6,500,000 in 1967. Per share earnings increased from $1.26 per common share in 1966 to $1.89 in 1967. Revenues also set a new record in 1967, rising to $70,350,000, compared with $55,204,000, in the previous year.

Subject to shareholder approval, the 3 for 2 stock split of SDS common stock will be distributed on May 13, 1968 to shareholders of record March 22, 1968.

The company called all outstanding 3-1/2% convertible subordinated debentures on January 29, 1968, for redemption on February 28, 1968. The debentures are convertible into 268.547 shares of common stock at a price of $93 per share. As of December 31, there was $24,975,000 principal amount of the debentures outstanding.

SDS president Max Palevsky said the principle factors in the company's growth were the increasing shipment rate of Sigma computers and improved profit margins in the second half of the year. More than 100 Sigma systems have been installed, and the production rate for all SDS products more than doubled during the fourth quarter of 1967.

Palevsky also noted a favorable purchase-to-lease ratio in orders received in 1967. About 75% of incoming orders were for the purchase of computers.

Upon conversion of the 3-1/2% debentures at the end of this month, the company's net worth will be increased to about $68 million.

SPA Now 105 Strong

Michiana Is New SPA Chapter

The Systems and Procedures Association chartered two additional Chapters this month to push its total to 105 Chapters in the U.S., Canada, Mexico, and Venezuela.

The latest additions were Central New Jersey, chartered with 21 members, and Michiana, with 39 members.

Central New Jersey covers the Princetoo, N.J., area and is the 12th SPA Chapter in the Metropolitan New York-New Jersey area. Michiana gets its name from the border region it spans – Elkhart and South Bend, Indiana, and Niles-Buchanan, Michigan.

Officers of Central New Jersey are Stanley R. Butterworth, Honeywell, Inc., president; Robert D. White, vice president; William K. Heffner, First Trenton National Bank, secretary; William L. Collins, Trenton Trust Co., treasurer; and Raymond J. LaVonture, Crane Co., division director.

Michiana's officers are S.L. Tash, C.G. Conn. Ltd., president; E.M. Rodgers, Associates Investment Co., vice president; Kenneth G. Rhodes, The Wheelabrator Corp., secretary; James A. Chinn, Miles Laboratories, Inc., treasurer, and George C. Howe, Miles Laboratories, Inc., division director.

COMPUTER OPERATION MANAGEMENT

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SCERT Franchised For West Europe

Orders and Installations

Comress, Inc., Washington, has been awarded a major contract for performing SCERT (Systems and Computer Evaluation and Review Technique) services in Western Europe. The contract was made with *Treuarbeit Corp.*, a major European accounting and management consultant firm, which will offer SCERT services on a franchise basis. This will be the first time SCERT services will be offered in West Germany, Austria and Switzerland.

The Manned Spacecraft Center of NASA has purchased a *Control Data* 6400 Digital Computer System to drive the MSC Procedures Development Simulator. The system will operate both a Command Module Simulator and a Lunar Module Simulator in a simultaneous real-time mode. It will play a key role in developing the flight techniques to be used in the U.S. effort to achieve a landing on the moon.

The *French National Railway Co. (SNCF)* has ordered two additional *Univac* 1108 computer systems valued at more than $5 million. The new equipment will supplement two existing 1108s already operating at the railroad's computer center in Paris.

The *United States Post Office* has awarded a $7.3 million contract to *Burroughs* for the production and installation of 59 letter sorter machines. This is the fifth award in a series of contracts for the giant sorter and raises the total number of machines to 178. Burroughs developed the letter sorters under a production development contract awarded by the Post Office Department in 1958.

The *Naval Air Systems Command* has awarded a follow-on contract in the amount of $5.6 million to the Defense Systems Division of the *Bunker-Rymo Corp.* for additional electronic warfare equipment on the EA-6A Marine aircraft.

Miller Electric Manufacturing Co. of Appleton, Wis., has ordered a *Control Data* 3150 system for use in engineering, production and marketing applications.

The *Dow Chemical Co.*, Midland, Mich., has installed an SDS 940 time-sharing computer system. Dow will use the *Scientific Data Systems* computer, via Teletype consoles, for research and development projects.

Expansions

$1.6 Million Expansion Adds Five Computers To RCA's Wall St. Center

WELLESLEY HILLS, MASS. – *Honeywell Controls Ltd.* has opened a new Electronic Data Processing office in Winnipeg, Canada, with a sales force and a fully staffed field service repair center for maintenance and installation of the firm's Series 200 computers. The office is under the direction of Jonah Lepke, who manages a staff of seven salesmen. The office handles part of Manitoba and Saskatchewan.

NEWTON, PA. – *Optical Scanning Corp.* has opened new sales offices in the 500 North Michigan Building in the heart of Chicago's business district. Gail Franke, recently appointed Chicago branch manager, is in charge.

NORTH LONG BRANCH, N.J. – The Graphics and Instrument Division of *Electronic Associates, Inc.* is expanding its field marketing staff. Bert T. Johnston has been appointed central regional sales manager, with responsibility for sales activity in the central United States and Canada. The company also named marketing representative firms in Kansas, Texas and Colorado.

C. A. Steinberg

REDWOOD CITY, CALIF. – *Ampex Corp.* has formed a new operating division to handle the company's growing activity in information storage and retrieval. The new Videofile Information Systems Division is headquartered in Redwood City with a 100,000 square foot manufacturing facility in Sunnyvale. Charles A. Steinberg has been named general manager of the division.

NEW YORK – The *RCA Systems Center* on Wall Street has launched a $1.6 million expansion program to meet the growing demand from stockbrokers for outside computer handling of their voluminous "back-office" paperwork. The Systems Center is adding five new computers, including the first third-generation Spectra 70 equipment, to the nine systems currently processing paperwork for major brokerage firms. The back office workload has become so serious that the leading securities exchanges have shortened their trading hours until further notice to give brokers time to reduce the backlog of paperwork.

Data Products Record 9 Month's Earnings: $622,000

CULVER CITY, CALIF. – Data Products Corp. reported record earnings for the first nine months of the current fiscal year. Revenues were up 59% from the corresponding period last year.

Revenues for the nine month period were $15,407,964, according to Data Products president Erwin Tomash. Net income, excluding extraordinary items, amounted to $622,419, equal to $.17 per share, as compared with $24,393 last year.

Backlog of firm orders was reported at $15,470,000, up almost 50% over last year's figure at this period.

The figures include operating results of Uptime Corp., recently acquired by Data Products.

Small Rand Tablet Reduced In Price

CAMBRIDGE, MASS. – Bolt Beranek and Newman has reduced the price of its Grafacon 1010A computer input unit. The 1010A, which was priced at $9,500, now sells for $7,500. The $2000 reduction comes as the result of the introduction of the Grafacon 2020, priced at $2,500.

For SDS 9300

Independent Offers SDS Simulator

REDONDO BEACH, CALIF. – United Computing Corp. has formally released its Sigma 5/7 simulator of the SDS 900 series computers. The package, called UNIT I, allows software written for 900 series computers to be run directly, without modification, on the Sigma 5/7.

In addition to its simulation capabilities, the package has other features including: trace, breakpoint, core dump, panel interrupts, and the ability to jump back and forth between 900 and Sigma code.

Spokesmen for United claim 900 series computers can be "on the air" instantaneously after the Sigma 5/7 is installed and have all the software capabilities presently available on the 900s.

The package will sell for $8000, including the simulator, a week of on-site support, user's manual, and a lifetime warranty on the program's code structure.

Debug Aid For SDS Real-Time Fortran

LOS ANGELES, CALIF. – A modification to SDS Real-Time Fortran for SDS 930 users has been developed by the Los Angeles office of Computer Usage Development Corp. This modification to the compiler enables the user to obtain a listing of the object code generated by the compiler. The company claims it is also a valuable tool for debugging.

2 Versions Coming

Timetable For ADR's PDQ 360 Implemention Given

PRINCETON, N.J. – Details of the new PDQ System ware announced this week. They show that PDQ has been designed for two stages of implementation. The first stage is the implementation of a basic system that operates under DOS in batch environment (available in late February 1968).

The second stage is the implementation of a full PDQ System. The full system will operate under DOS or OS. It will have on-line and batch processing capabilities, additional retrieval options, and output editing features.

Compatibility for Upgrading

Full compatibility will be maintained between the two versions of PDQ. Data bases created with the basic PDQ System can be used by the full system. A PDQ user can lease the basic system until the full system is available. At that time, or at any time during his lease period, a user can, optionally, upgrade to the full system.

Uses For PDQ Systems

The information retrieval system is expected to find use within organizations by replacing current manual or mechanized retrieval systems, and in new retrieval applications. PDQ can be the basis for developing retrieval systems, where such retrievals are not currently being performed either because of lack of manpower, difficulty of searching, or because of the elapsed time to search manually.

Some PDQ Specifics

The system stores, retrieves, modifies, deletes, and maintains information, using eight natural English-like commands. Data is entered into the system using the Enter command; retrieved using the Get or Try commands; modified or deleted using the Change or Purge commands; or maintained using the Maximum, List, and Adjust commands.

Some of the system highlights are: Entry and retrieval may be made by the immediate user of the data base; no intermediary is required. A user may conveniently create a private data base. Data may be in any format and need not be inserted in sequence. For each query, the user can control the number of items retrieved. For each item retrieved, the user can control the number of lines retrieved. The cost of updating or retrieving is minimized because the entire file is not searched. Housekeeping is done by the system, not the user. The system is self-adjusting, in an attempt to maintain optimum efficiency. PDQ may be used as the foundation for more elaborate systems.

PDQ is a proprietary package marketed by Applied Data Research. It leases for $2500 a year, or $5500 for three years.

3M Co. Offers Collars & Cases

Collar for 10½" reel (top), and cannister for 7" reel.

ST. PAUL, MINN. – Plastic collars for 10-1/2 inch reels, and 7-inch reels and canisters are available from the 3M Company.

The one-piece, break-resistant computer tape reel collar has a telescopic locking device that adjusts tightly to protect the tape from dirt and dust. It is compatible with present storage systems, and can be hung or inserted on shelf racks.

The new 7-inch reel has a clear front which makes it possible to see the tape on computer drives. The 7-inch cannister protects short lengths of tape in storage and shipping.

Mohawk/DASA Tie Collapse Reveals Some Coming Items

BOSTON, MASS. – Some of the plans for Mohawk Data Sciences are indicated in the announced failure of a proposed Mohawk/DASA merger. The announcement, published last week, said that the reason for calling off negotiations was the lack of complete "fit" between the companies' products.

However, Mohawk will purchase a considerable amount of data equipment from DASA – including a scrambler; message relay stations, and message composers.

The message composers effectively allow fixed data to be pulled off one of the tape series, and be run with variable data put in by touch' telephones. This is particularly useful for warehouse and retail outlets where the majority of input needed to be sent over the lines is known in detail – all that is really required is specific product identification and quantity.

The scrambler safeguards data as it crosses the lines. It is by no means the most sophisticated scrambler, but it does provide additional security.

Relay stations, somewhat similar to the Honeywell Keytape system, allow direct tape transmission to a unit that is on line to the communication systems and to the computer. Basically, the transmission is periodically sent from remote stations, put on the magnetic tape unit, and read off under computer control.

The suggested contract between Mohawk and DASA calls for Mohawk to order a minimum of $2 million worth of DASA products during the first year and about $40 million during the next five years.

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Burroughs To Have 4th NJ Plant

Ray W. Macdonald, president of Burroughs Corp., has announced plans to construct a new, 144,000-square-foot engineering and manufacturing plant in Piscataway Township near Plainfield, N.J., nearly doubling the company's electronic production capacity in the state.

The land, construction, and initial equipment represent an investment of approximately $3 million. The plant will employ 1000 persons.

The new plant will be used to design and produce electronic memory systems for Burroughs computers and electronic accounting systems, and for sale to others in the electronics industry.

"The new plant is part of Burroughs worldwide, $160 million program to expand engineering and manufacturing capacity," Macdonald said. "Eleven new plants are either under construction or in final planning stages."

The plant will be operated by the newly-formed Electronic Memory Systems Organization of Burroughs Defense, Space and Special Systems Group. The organization was created, as the result of increasing government and commercial orders for Burroughs data processing systems and memory products. Included in the plant's products will be ferrite core and thin film memory stacks and complete high speed memory systems.

Plans call for construction to begin in March with occupancy scheduled for October of 1968. The new facility will be the fourth Burroughs engineering and manufacturing plant in New Jersey. In addition to the Electronic Components Organization in Mount Bethel, Burroughs operates plants in Carlstadt and Park Ridge.

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Possible Successor To Paper Tape

SANTA ANA, CALIF. – The Grafocon 203-1 Punched Card Digitizing System – a new graphical input system for off-line digitizing of graphic data from hard copy such as drawings, strip charts, maps, etc., or from projected slide or film images onto 80-column IBM punched cards – has been recently introduced by *Bolt Beranek and Newman's* Data Equipment Division.

The system consists of the 1010A Digital Tablet – a 10½" square production version of the RAND Tablet graphic input device – with pen-like stylus, card punch equipment, and associated electronics assembled in a 30" H x 54" L x 20" D cabinet.

In operation, the data to be digitized is placed or projected onto a surface and pin-pointed with the stylus. The position of the stylus is digitized to a precision of 10X bits and 10Y bits. The stylus position information and identification data are punched on the cards with either an IBM Model 526 Printing Summary Punch or an Uptime Model 120 Serial Card Punch.

New Products

FLUSHING, N.Y. – A new extra thin cross-linked cellulose perforating tape that provides nearly twice as much tape in the same space as conventional paper tapes has been announced by *Robins Industries Corp.*

The double length parmits twice as much unattended machine time in communication, computer, numerical control, and data processing applications without changing rolls and provides a substantial potential saving in handling and storage space. It comes in 1800 and 5500 foot lengths, three standard widths (1, 7/8, and 11/16 inches) and four colors (buff, red, green, and blue). The core is 2" in diameter.

The standard extra length tape, which is oiled and buff color, is available for immediate delivery. It can also be obtained in unoiled material, special colors, and other lengths and widths on special order.

Time-Sharing Can Hurt EDP Manager's Position

One of the most dramatic developments of the last few years has been the growing power of EDP within various firms. EDP offers leads to senior management level – sometimes with nice titles: director of information systems, manager of message switching, etc. Technically-oriented people seem to be moving into better positions. Purchasing of new computers and systems evaluation are clearly demonstrating the growing role of automation in industry, and should improve the EDPerson's already senior position.

However, it is not working that way. Far from becoming the sole source of expertise he had expected to be, many an EDP manager is being left out of some of the most modern EDP systems! This has occurred because of the way some systems have been created, and because EDP managers have not always been able to provide satisfactory assistance to certain areas in the corporate structure.

Time Sharing Problem

Time sharing is being done by teletypewriters netted with an outside computer – it is not generally being done in the computer establishment. General Electric estimates that the majority of its work is coming from people who have computers, but do not use them for time sharing. And, people who are buying time sharing services are hardly speaking to those people in charge of the firm's own computers.

Personal Page

It is not hard to recognize this apparent breach and where it will lead – particularly if the EDP manager is not alert.

Time sharing offers it retail lots what the EDP manager is only concerned with in wholesale. The keyboard and availability of the teletypewriter are often looked down on by the EDP manager. He knows that he could supply the same material, at a lower cost, if only the time share people would do the date processing, and give it to him through the appropriate channels. Often he has not studied time sharing capability, knowing that his own computer is not fitted with such facilities. Often he has not considered the "rightness" of his present computer for the firm. If there is a need for data processing and time sharing, why shouldn't the company's own computer provide them?

Out In The Cold

It is certain that engineering sections and other groups will continue to develop their time sharing organizations, independent of the EDP manager. And eventually, when it comes to designing new mode management information systems, it is likely that management will call on time sharing personnel rather than EDP managers – to be their advisors.

It is possible to do something. Keep abreast with developments to insure that there will not be a knowledge gap between the two areas. This is difficult. Time sharing traditionally speaks more easily to the user and the mathematician than many EDP departments are accustomed to. Time sharing requires faster response and more integration with the firm's research activities. These are points that can be learned, and require minimal attention. However, there must be frequent examinations into what the system is doing, what it is providing to the user, and how much it is costing – the most important facet of this examination. If it can be shown that EDP can provide the same – or better – services for the same dollar, the reign of the EDP department will go unchallenged. Then, EDP's time sharing service for the engineers and management information systems can be economically integrated into the existing system.

Full Circle

There are undoubtedly other methods of preventing a war between the two closely related areas. However, one thing is clear. If an EDP manager simply ignores the situation, then EDP returns to its beginnings . . . machine accounting.

The number of computers in use around the world will increase from 54,000 to more than 350,000 by 1980, according to a special report prepared by Data Systems magazine.

CDC To Buy Analog Firm

A provisional agreement between Control Data & EAI provides for the acquisition of EAI, and its operation as a wholly owned subsidiary of Control Data. Control Data presently has no substantial analog computation capability, which is the main strength of EAI. Above is one of the newest EAI systems, the EAI 580, which appears to be child's play – according to this publicity picture.

1108 Services On Coast

continued from page 1

Houston computer center. Preliminary figures showing production differences on test programs at the New Orleans installation were given to COMPUTERWORLD by Leroy Towell, vice president of UCC. These are shown on the chart and point out that – for these cases – while central processor time is not being affected by terminal use, Cope 45 is allowing the card reader and printer to work at nearly full capacity.

Remote and Time Sharing

The CSC operation has the potential of providing time sharing as well as remote operations. It also has the advantage of having been in operation since 1964. Specialized software (Remotran) allows more than 500 jobs a day to be handled by the CSC Rich, land, Washington computer. Time shared software, originally scheduled for delivery in the fall of 1967, is now expected to be delivered by the fall of 1968.

Remote operations allow the company's clients to submit jobs to communication links via telephone from small user terminals like the Univac DCT 2000.

CSC expects that when the time share operating system arrives it will accommodate a variety of remote terminal devices, including the DCT 2000 (which can send and receive 300 characters per second over voice grade lines), Univac 1004s and 9200s, and IBM 2780s. Low speed devices, including the models 33, 35, and 37 Teletype units and IBM's 2780 can also be used for control and computation computing.

Operating systems and programs using its facilities will be made as device-independent as possible, and a wide variety of hardware configurations may not even apply – a number of facilities can be satisfied by logical elements rather than by necessarily physical ones.

Shoe Co. Using Optical Reader

The first commercial model of the IBM 1287 Optical Reader is on the air at Thom McAn Shoe Co. in Worcester, Mass. The unit reads numbers imprinted on sales slips by the company's salesmen in over 900 stores across the country and feeds the data into a central IBM 360/30.

The price of the unit is probably in the $162,000 - $180,000 range.

Commercial Firms Know 70% Of Us

continued from page 1

history no further than the push of a button away."

Experts Testify

The subcommittee has heard testimony by Alan Westin (School of Government, Columbia) suggesting that citizens be given property rights to their own data.

Wiley Branton (United Planning Organization) felt that personal data on the nation's poor – particularly those eligible under one of the government's poverty programs – should be protected by a three-man regulatory agency. Brenton also asked that the FBI explain what protection is given for individual privacy under the crime data system now in operation.

RAND Corp. was represented by Paul Armer (Computer Sciences Department). Armer maintained that in the very near future there would be at least one major U.S. company able to supply detailed information on 70% of the entire population.

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Long also pointed to another serious privacy threat – completely computerized banking, leaving us a "cashless-checkless society."

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Computers: What's their future?

The special Review and Forecast issue of *EDP Industry Report*, just published, contains a valuable analysis of the mushrooming computer industry. Among the issue's features are industry sales projections through 1975 . . . trends to watch for in the industry . . . and analyses of major manufacturers. This Review and Forecast issue will bring you up to date on the computer industry. *For your own copy, send $9 to:* EDP Industry Report 60 Austin Street Newtonville, Mass. 02160

$ $ FINANCIAL MATTERS $ $

DALLAS – *DPA, Inc.*, a lessor of IBM computer and other data processin equipment, reported record earnings for fiscal 1967. Gross revenues for the year ended November 30, 1967 rose 19% to $7,135,444 from $5,990,862 in the prior fiscal year. Net income advanced 33% to $308,022 from $201,083 in 1966. Earnings per share on 1,017,466 average outstanding shares totaled $.30 compared with $.24 in 832,793 average shares.

MINNEAPOLIS – *Control Data Corp.* reported sales, rentals and service income of $163,918,959 for the six months ended December 31, 1967, as compared with $110,464,119 in the same period last year. Net earnings for the six months were $8,563,386 which, after preferred stock dividends, amounted to $1.01 per share of common stock. This compared with earnings of $1,769,410 and, after preferred stock dividends, $.16 per share for the same period last year.

WASHINGTON – *Computer Leasing Co. (C.L.C)* has entered into an agreement with certain stockholders of *Standard Computers, Inc.*, to purchase an aggregate of 105,682 shares of common stock of Standard at $42 a share. This represents approximately 19% of Standard's outstanding common stock. CLC made the purchase as an introductory step toward negotiations for a possible merger between the two companies.

The common stock of CLC has been approved for listing in the American Stock Exchange. Its symbol will be CLE.

For the year 1967 the company reported net income of $946,976, or $.32 a share, on revenues of $4,970,793. Total assets at the end of the year were $41.5 million, and there was 3,002,588 shares outstanding.

DALLAS – The board of directors of *Recognition Equipment, Inc.* has proposed a 4 for 1 split of common stock and an increase in common shares to 6,000,000, par value of $.25, from 1,200,000 par value $1. Both proposals are subject to stockholder approval at the company's annual meeting in February. If approved by stockholders, it is expected that additional shares will be issued to shareholders of record February 26.

ALBERTSON, N.Y. – *Digitronict Corp.* has completed the acquisition of *Invac Corp.*, Waltham, Mass., manufacturer of electronic keyboards, custom page printers, and paper tape products. Under the terms of the transaction, Digitronics has acquired the assets of Invac in exchange for $1,700,000 in junior subordinated notes convertible into Digitronic capital stock at $22 per share.

DALLAS – *University Computing Co.* is exploring plans to establish public ownership of *Computer Industries, Inc.*, the manufacturing subsidiary of University Computing, producers of peripheral equipment and terminal systems for time-sharing.

CHICAGO – *Datronic Rental Corp.* reported net earnings of $64,357 for the six months ended December 31, 1967 as compared with $25,839 for the similar period in 1966. The earnings represented a 253% increase over 1966 earnings. Revenues were up 103%, from $156,364 in the six months period in 1966 to $473,067 in 1967.

Computer Stocks: Trading Summary

Week Ending February 11, 1968

NEW YORK STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Week Last	Week Net Change	Week %Change
Addressograph-Multigraph	80 1/2	46 3/8	62 1/2	57 1/2	58 1/2	– 2 3/4	– 4.49
American Research	182	37 3/4	143 1/4	125 1/2	125 3/8	–17 3/8	–12.13
Bunker-Ramo	40 3/4	20 3/4	31 1/2	30	30 1/2	– 1 3/8	– 4.31
Burroughs	462 3/8	277 7/8	381 1/4	346 1/4	370 7/8	– 5	– 1.33
Collins Radio	114 7/8	53	78 1/4	68 1/4	68 3/4	– 1 1/2	– 2.18
Control Data	163 3/8	33 1/2	126 1/2	115	118 3/4	+ 3/4	+ 0.64
Electronic Associates	30 1/4	14 3/4	21 3/8	18 3/4	18 7/8	– 1 1/2	– 7.36
General Electric	113 7/8	82 1/2	95 7/8	87 1/8	87 3/4	– 1 1/8	– 1.64
Honeywell	117 7/8	63 1/2	86 1/2	80 7/8	81 1/4	– 1 7/8	– 2.81
IBM	368	302 1/2	344 1/2	328 1/2	331	–13 3/4	– 3.96
Litton	170 3/8	67 1/8	73 3/4	68 5/8	69	– 4 3/8	– 5.86
Nat Cash Register	136 3/4	101 1/8	108 3/4	102 1/4	106 1/4	– 2 1/2	– 2.30
RCA	65 1/2	42 3/8	48 1/8	47	47 3/8	+ 1/4	+ 0.26
Raytheon	117	65	83 3/4	77 1/2	83 7/8	+ 2 3/8	+ 2.90
Readers	77 3/4	37 3/4	50 1/2	49 3/8	49 1/8	– 3 7/8	– 7.73
Scientific Data	133 3/4	70 3/8	127 3/8	119 3/4	123	+ 3	+ 2.50
SCM	82 1/4	43 1/2	68 1/2	63	63 7/8	– 3/4	– 1.16
Sperry Rand	43 1/8	28 1/8	40 1/2	40 1/4	40 1/8	– 1/8	– 0.26
NYSE COMPUTER STOCK AVERAGE						– 4.83	– 4.02

AMERICAN STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Week Last	Week Net Change	Week %Change
Audio Devices, Inc.	33 1/8	20	28 1/4	25 3/4	25 7/8	– 2 3/8	– 9.21
Automatic Data Processing	68 1/2	41 1/2	52 1/2	47 1/2	48	– 1 1/2	– 3.12
Bunker Ramo	31 7/8	7 1/2	16 1/4	13 1/2	13 3/8	– 2	–12.80
Calcomp	46 3/4	34	37 7/8	36 1/2	36 5/8	– 2 1/4	– 6.10
Computer Applications	43 3/8	16	31 5/8	23 1/4	26 1/4	+ 4 7/8	+15.66
Computer Sciences	67 5/8	18	68 1/2	53 1/4	63 1/4	– 3	– 4.52
Digital Equipment Corp.	156	29 3/8	112 3/4	87 1/4	88 3/4	– 8	– 7.50
EC Computer Corp.	41	21 1/8	32 3/8	29 1/8	29 3/8	– 4 1/2	– 9.13
Leasco	166 1/4	33 3/8	108 1/4	88 1/4	103		
Levin-Townsend Computer Corp.	77	10 7/8	58 1/8	50 1/2	51 3/4	+ 1 1/8	+ 2.36
Milgo Electronics	23 1/8	5 3/8	20 5/8	16 1/4	16 3/8	– 4 1/8	–20.12
National Data Sciences	158 1/2	108	138	108	108	–33	–23.40
Planning Research	51	27 3/8	35 3/8	28	30 7/8	– 4 3/8	–12.41
Potter Instrument	40 1/2	12 3/8	30 1/2	27 3/4	27 1/2	– 2 5/8	– 8.71
Randolph Computer Corp.	35 1/4	32 1/4	44 3/4	39 3/8	40 3/4	– 3 1/2	–11.88
AMEX COMPUTER STOCK AVERAGE						– 3.33	– 8.90

OVER-THE-COUNTER	1967 High	1967 Low	Friday Bid	Friday Asked	Last Friday Bid	Week Net Change	Week %net Change
Applied Data Research	10	3 1/8	25	27	25	+ 1 3/4	+ 8.05
Bolt, Beranek & Newman, Inc.	30	8 1/4	20	21 1/2	21 1/4	– 1 1/4	– 8.05
Computer Image	70	20 1/4	45	47	48	– 3	– 6.23
Cyber-Tronics	19	4 3/4	14	14 3/4	14 3/8	– 2 3/8	–14.20
Data Products	23 3/8	7 1/2	16 3/4	17 1/4	17 1/8	– 1 3/8	– 8.33
Digitronics	27 1/2	6	18 1/2	17 1/2	18	– 1 1/2	–16.67
EDP, Inc.	47 3/8	6 1/4	32 7/8	31 3/8	31 1/4	– 1 1/4	– 3.85
Electronic Memories	57 1/2	12 3/4	42	43	39	– 9	–17.45
Fabritek	15 1/4	4	9 1/2	10	10 3/8	– 1 1/8	–10.10
LNC Indus., Inc.	16	7 3/8	11 1/2	12	12 3/4	– 1 1/4	– 9.00
Management Assistance	24 3/8	10 1/8	12 1/4	12 3/8	12 1/2	– 1 1/4	– 9.26
Memorex	66 1/2	35	35	41	40 1/2	– 7 1/2	–15.28
Optical Scanning Corp.	102	25 1/4	81	84	81	–16	–16.50
Recognition Equipment Corp.	69	15 1/4	61 1/2	64	61	– 8	–11.59
Systems Engineering Labs.	83 1/4	8 7/8	48	50	52 1/2	– 6 1/2	– 8.56
Universality Computing Co.	95	63	66	68	75	– 9	–12.00

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The New Shape Of GE Computers

PHOENIX, ARIZ. – In a nationwide regrouping of its Information Systems Equipment Division, General Electric has organized its U.S. computer engineering, manufacturing, and marketing into 14 key departments and operations.

At the same time, the Division's general manager, Louis E. Wengert, and deputy division general manager for Information Sales and Service, Verner S. Cooper, also named the management team to head them up.

Most of the top managers for the new departments and organizations have been in the company's computer equipment and information systems business for some time. Three of the managers have been drawn from top management ranks of GE's aerospace and defense electronics systems businesses.

Louis E. Wengert
General Manager

Verner S. Cooper
Deputy Gen. Man.

J.F. Burlingame
Large Systems Dept.

Jack Katzen
Special Systems Dept.

John C. Croyle
Field Eng. Dept.

L. L. Dengler
Sales Programs Op.

Erwin M. Koritz
Processor Equip. Dept.

R. E. Roberts
Medium Systems Dept.

John E. Ryan
Info. Management Op.

Clifton W. Sink
Field Sales Operation

T. A. Vanderslice
Info. Devices Dept.

U.S. Product Lines

Reporting to Mr. Wengert are five newly-established departments, responsible for the major computer product lines, processors, and devices marketed in the U.S.: Large Systems Department headed by John F. Burlingame, responsible for development and marketing of large-scale GE-600 computer systems; Medium Systems Department headed by Richard E. Roberts, responsible for development and marketing of the GE-400 and GE-200 medium-scale computer systems; Special Systems Department headed by Jack Katzen, responsible for information systems developed for specialized data processing functions and for development and sale of generalized application software packages; Processor Equipment Department headed by Dr. Erwin M. Koritz, responsible for U.S. development and manufacture of computer central processors and other computer subsystems; Information Devices Department headed by Dr. Thomas A. Vanderslice, responsible for development, manufacture, and marketing of information components and devices in the U.S.

Sales and Field Service

Reporting to Mr. Cooper are a department and three operations responsible for sales and field service of GE information systems and products throughout the U.S.: Field Engineering Department headed by John C. Croyle, responsible for installation and maintenance within the U.S. of GE computer products and systems; Sales Programs Operation headed by Lawrence L. Dengler, responsible for development and application of U.S. sales programs; Field Sales Operation headed by Clifton W. Sink, responsible for field sales programs in the U.S.; Information Management Operation headed by John E. Ryan, responsible for design and consulting services, application software development, operations research and special training courses in the information systems field.

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SYSTEMS ANALYST
SALARY OPEN

Our client, a leading insurance and mutual fund company headquartered in San Francisco, is seeking a systems analyst to act in a liaison position between company management and the 360-oriented data-processing installation. Reporting to the Manager of Data Processing, he will consult with leading executives, managers of investment funds, and financial officers to prepare specifications for approved systems, indicate in detail the source and form of original data, the logical processes to be performed, and the output requirements. He will also provide users written procedures describing input requirements and the meaning and use of output.

Ideal candidates will have at least three years of business systems experience in a computer-oriented environment in one or more of the following fields: Mutual funds, stocks and bonds, banking and investments, or life insurance, preferably utilizing higher mathematics or statistical techniques. Degree preferred.

Our client offers all employees a standard benefit package, a profit-sharing and retirement program, hospital, medical and life insurance policies, and liberal vacation allowances.

The Data Processing Manager can interview qualified candidates in any major metropolitan area after reviewing a resume and salary history in confidence. Client pays fee.

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INFORMATION SYSTEMS PERSONNEL RECRUITING AND CONSULTING

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New Audio-Response System Works W[illegible] Burroughs 500

continued from page 1

terial. This can be stored for later batch updating, or used immediately.

It is also expected that the inexpensive telephone – all that is needed at the inquiry site – will make the equipment popular for operations such as answering inquiries about bank account balances, inventory quantities or stock numbers.

In a typical work situation, a bank teller, for instance, first establishes a telephone connection with the computer, then keys in an identification code and numerical codes representing the type of inquiry, and the account number.

The request is transmitted to the computer over telephone lines. A special communications program, running under the operating system in a multiprogramming mode, locates the information in random access, files and formulates codes that cause the voice response generator to produce the proper message.

The entire process, from beginning of inquiry to end of response, takes about 30 seconds.

In other applications of the new system, an operator could make inquiries about information such as order levels, inventory amounts or payroll data, or the operator could use the telephone keyboard as a device to add to or alter data stored in computer files.

Burroughs Audio Response System will lease for $795 a month. Purchase price for the system is $37,200.

How It Works

The voice response generator's memory is a rotating, cylindrical, photographic film containing 64 parallel tracks on which numbers, words, pauses and silence are recorded.

Photoelectric cells read the 64 tracks as they pass by, and words or numbers are selected, as instructed by the computer program, in the proper sequence to compose a message.

One track is silent and provides timing and pauses desired in messages. The other 63 tracks can contain three words or numbers, each of one-half second duration, or a phrase up to one and one-half seconds long. The 63 tracks, segmented into thirds, can contain a maximum of 189 individual words and numbers.

The electronic logic of a single system provides for sending out 128 different messages simultaneously. Multiple voice response generators may be installed on a single computer system up to the limit of available communication line connections.

Messages may be variable as to length and word construction, and may be sent to only one line, or up to 128 lines simultaneously.

System Applications

Some areas of application for the Audio Response System might include the following.

Real time inquiry, where a fast, usually short and accurate answer is required to questions concerning the status of an account or item. Real time management information retrieval, where analytical information is required quickly from random access files. Real time updating, where a positive and immediate means of "flagging" accounts is desired. Examples would be inventory reservations, stop payments, dollar holds, or other special account conditions. Real time order entry, where a rapid, [illegible] response is desired either [illegible] time, full-time or after-hours [illegible].